

# Service Manual



**PIONEER®**  
The future of sound and vision.

EQ-6000



**ORDER NO.**  
**CRT 1229**

GRAPHIC EQUALIZER

# EQ-6000

UC

# EQ-4000

UC

## SPECIFICATIONS

Power source ..... DC 14.4 V (10.8 – 15.6 V allowable)  
Grounding system ..... Negative type  
Dimensions (chassis) ..... 178(W) × 25(H) × 120(D) mm  
[7(W) × 1(H) 4-3/4(D) in.]  
(nose) ..... 170(W) × 24(H) × 12.5(D) mm  
[6-3/4(W) × 1(H) × 1/2(D) in.]  
Weight ..... 0.5 kg (1.1 lbs.)  
Equalization frequency  
(EQ-6000) ..... 40 – 80 Hz (Parametric), 125 Hz, 250 Hz,  
500 Hz, 1 KHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz  
(EQ-4000) ..... 60 Hz, 125 Hz, 250 Hz, 500 Hz,  
1 kHz, 2 kHz, 4 kHz, 8 kHz, 16 kHz  
Gain ..... 0 dB  
Equalization range ..... ± 12 dB  
Frequency response ..... 20 – 30,000 Hz (± 3 dB)  
Distortion ..... 0.05% (1 kHz, 500 mV)  
Signal-to-noise ratio ..... 101 dB (IHF-A network)

Input impedance ..... 10 kΩ  
Output impedance ..... 1 kΩ  
Max. output level ..... 2 V/1 kHz, 1% THD.

### Subwoofer (EQ-6000)

Crossover frequency ..... 50 Hz/80 Hz/120 Hz  
Crossover slope ..... – 12 dB/octave  
Output gain ..... – ∞ – + 10 dB (L + R)  
Phase switch ..... 0/180°

*These specifications were determined and are presented in accordance with specification standards established by the Ad Hoc Committee of Car Stereo manufacturers.*

### Note:

Specifications and the design are subject to possible modification without notice due to improvements.

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ES JUNE 1989 Printed in Japan

# 1. CONNECTING THE UNITS

## 1-speaker system + Subwoofer (EQ-6000)

- Be sure to set the Crossover Frequency Switch at any position but "OFF".

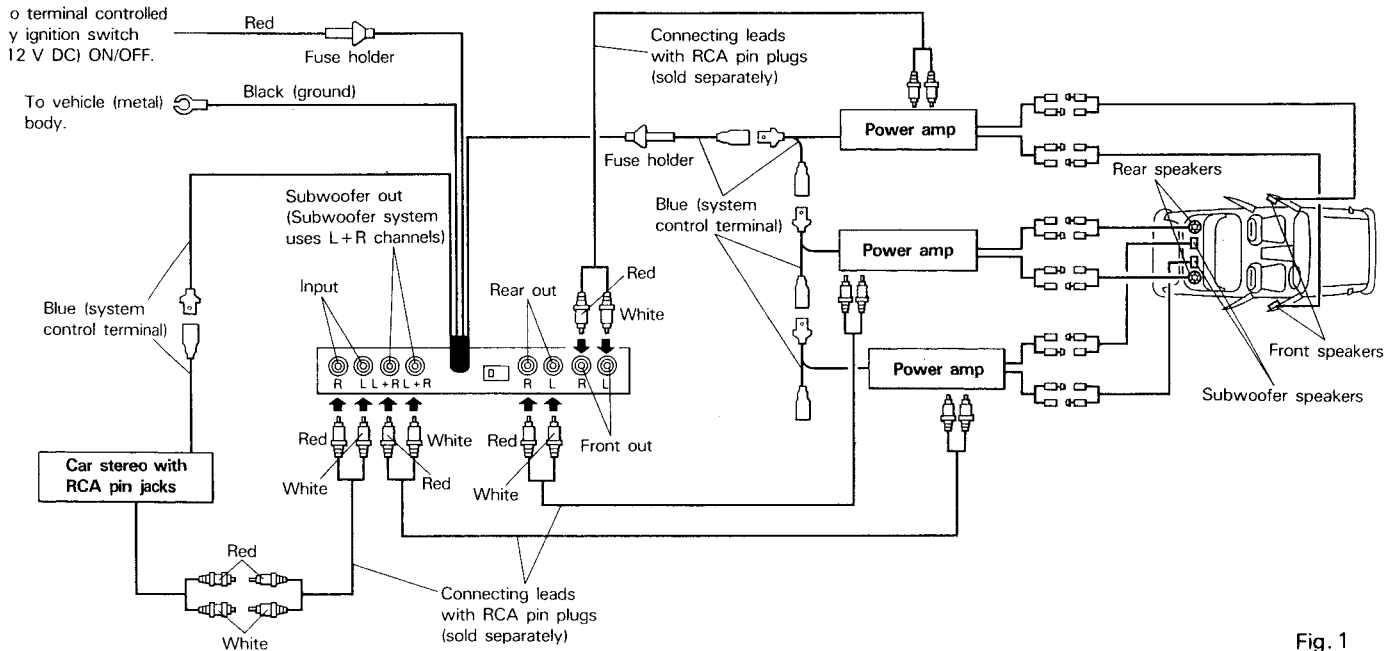


Fig. 1

## 4-speaker system

### EQ-6000

- Be sure to set the Crossover Frequency Switch at the "OFF" Position.

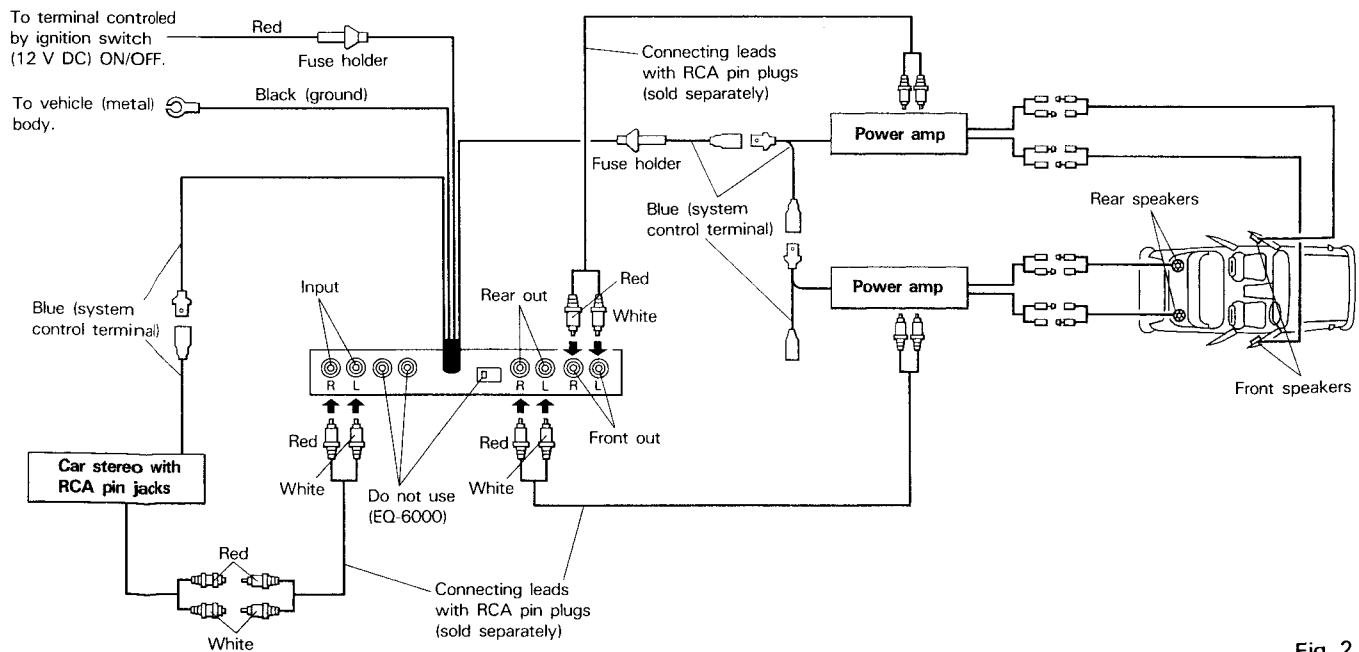


Fig. 2

## 2. CONTROLS AND THEIR USE

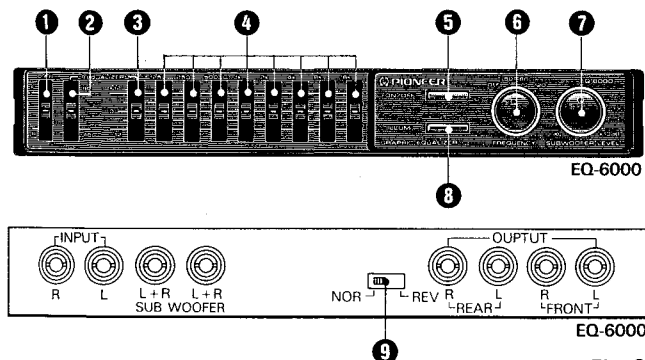


Fig. 3

### EQ-6000

#### ① Dual Amp Balancer

Allows adjustment of the balance between the front and rear speakers. Moving upwards causes rear speaker output to be reduced until only the front speaker sounds. Moving downwards causes front speaker output to be reduced until only the rear speaker sounds.

#### ② Parametric Frequency Control

Use this control to change heavy bass frequency when operating the parametric equalizer. The control allows to choose your desired frequency from between 40 Hz and 80 Hz according to the type of speakers and the piece of music listened to.

#### ③ Parametric Level Control

Use this control to adjust the level of the heavy bass frequency sound chosen with the Parametric Frequency Control ②.

#### ④ Equalizer Control

Sliding vertically allows creation of a desired sound.

#### ⑤ Equalization Switch

Press this button, and ②, ③, and ④ lever indicators will illuminate and the equalizer control function will activate.

#### ⑥ Crossover Frequency Switch

Allows to change the upper limit of crossover low range frequency for subwoofer speakers or the lower limit of crossover mid to high range frequency for other speakers. Select the best crossover frequency while listening to music according to the acoustic characteristics of both cabin and speakers. Set the switch at the "OFF" position when not using the subwoofer system.

#### ⑦ Subwoofer Level Control

Allows adjustment of the output level of the subwoofer speaker. Use this control to adjust the low range of the output.

#### ⑧ Illumination Color Change

To change illumination color, press the button Illumination Color Change. Pressing allows change from green to amber and vice versa.

#### ⑨ Subwoofer Phase Switch

Allows switching of the phase of the subwoofer speaker. Usually this switch is left in the NOR (normal) position. Set to the REV (reverse phase) position to switch the phase to accommodate for speaker position and music type.

- Controls ⑥, ⑦ and ⑨ operate when the subwoofer system is connected.
- If your car stereo has a fader control, set it to the center position.
- Changes in low pitched sounds may not be discernible even when the 40 to 80 Hz frequency level is adjusted if the program source does not include components in the 40 to 80 Hz vicinity or if the small diameter speakers are used.
- Changes in high pitched sounds may not be discernible even when the 16 kHz frequency level is adjusted if the program source does not include components in the 16 kHz vicinity.

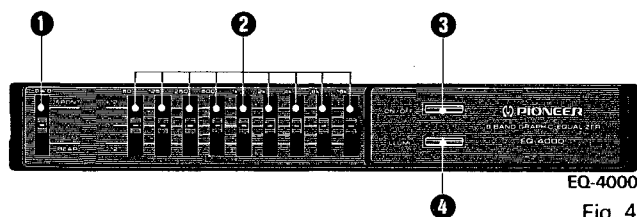


Fig. 4

### EQ-4000

#### ① Dual Amp Balancer

Allows adjustment of the balance between the front and rear speakers. Moving upwards causes rear speaker output to be reduced until only the front speaker sounds. Moving downwards causes front speaker output to be reduced until only the rear speaker sounds.

#### ② Equalizer Control

Sliding vertically allows creation of a desired sound.

#### ③ Equalization Switch

Press to activate the equalizer control function and illuminate the indicator on the equalizer control lever.

#### ④ Illumination Color Change

To change illumination color, press the button Illumination Color Change. Pressing allows change from green to amber and vice versa.

- If your car stereo has a fader control, set it to the center position.
- Changes in low pitched sounds may not be discernible even when the 60 Hz frequency level is adjusted if the program source does not include components in the 60 Hz vicinity or if the small diameter speakers are used.
- Changes in high pitched sounds may not be discernible even when the 16 kHz frequency level is adjusted if the program source does not include components in the 16 kHz vicinity.

## • ICs and Transistors

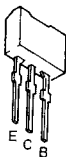
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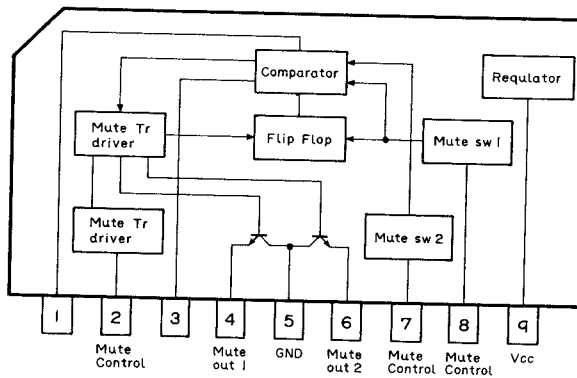
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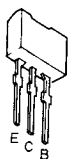
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2SB1237  
2SD1858  
2SB1240



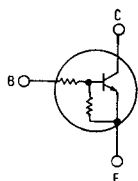
TA7362P



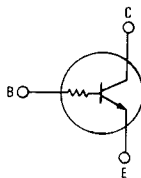
DTC124TL  
DTC114EL  
DTA144TL



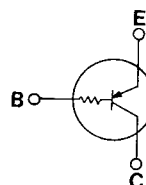
DTC114EL



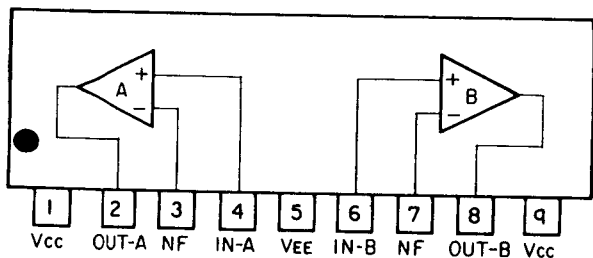
DTC124TL



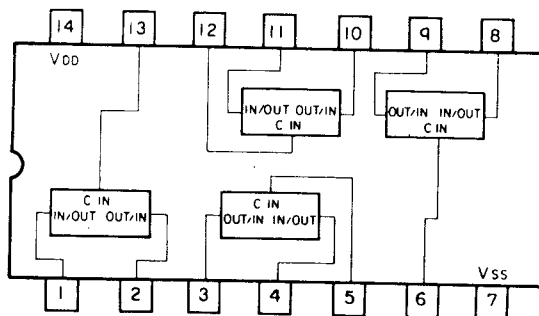
DTA144TL



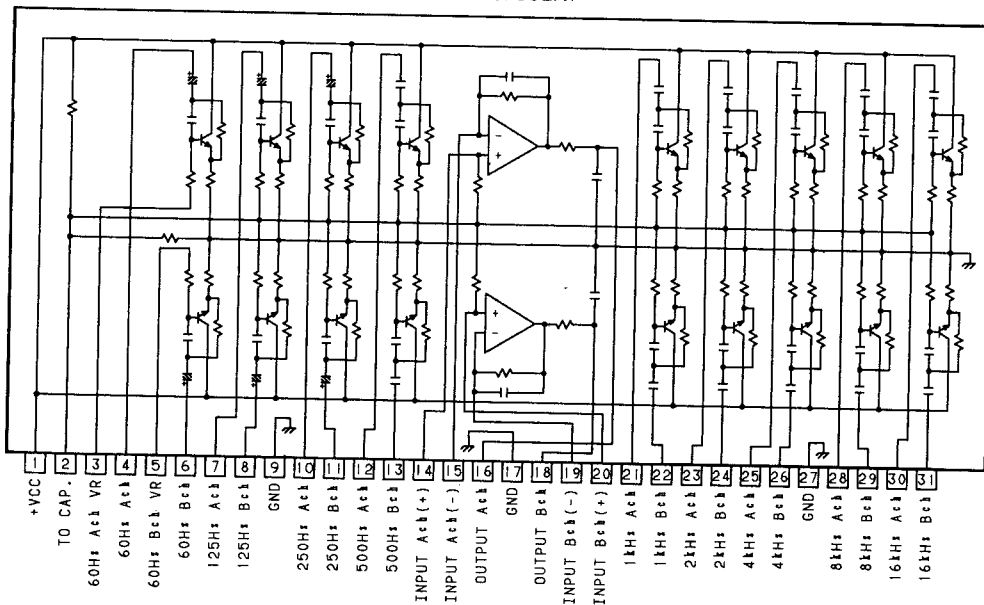
μPC4570HA



BU4066B



AFE436F002X1



## 3. BLOCK DIAGRAM

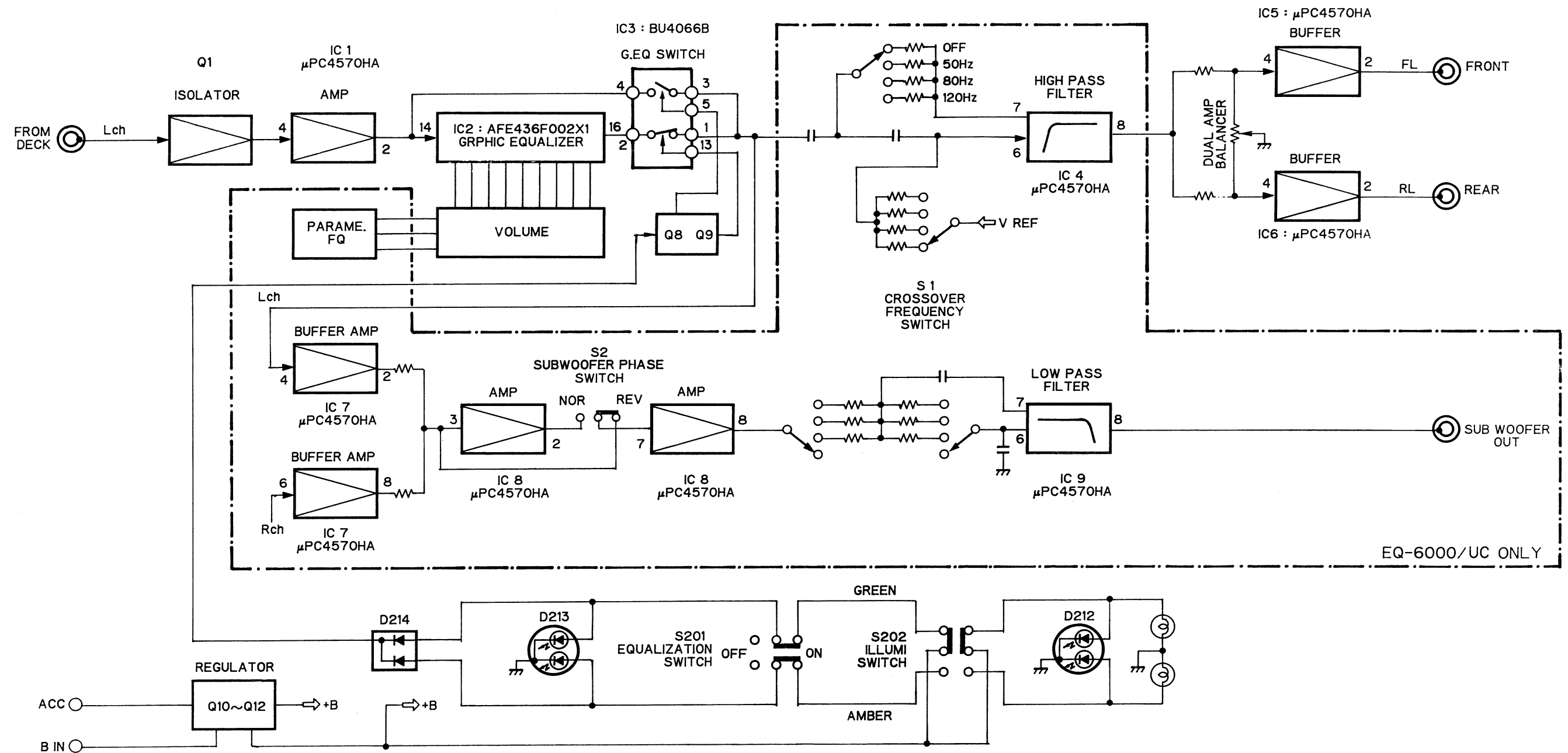
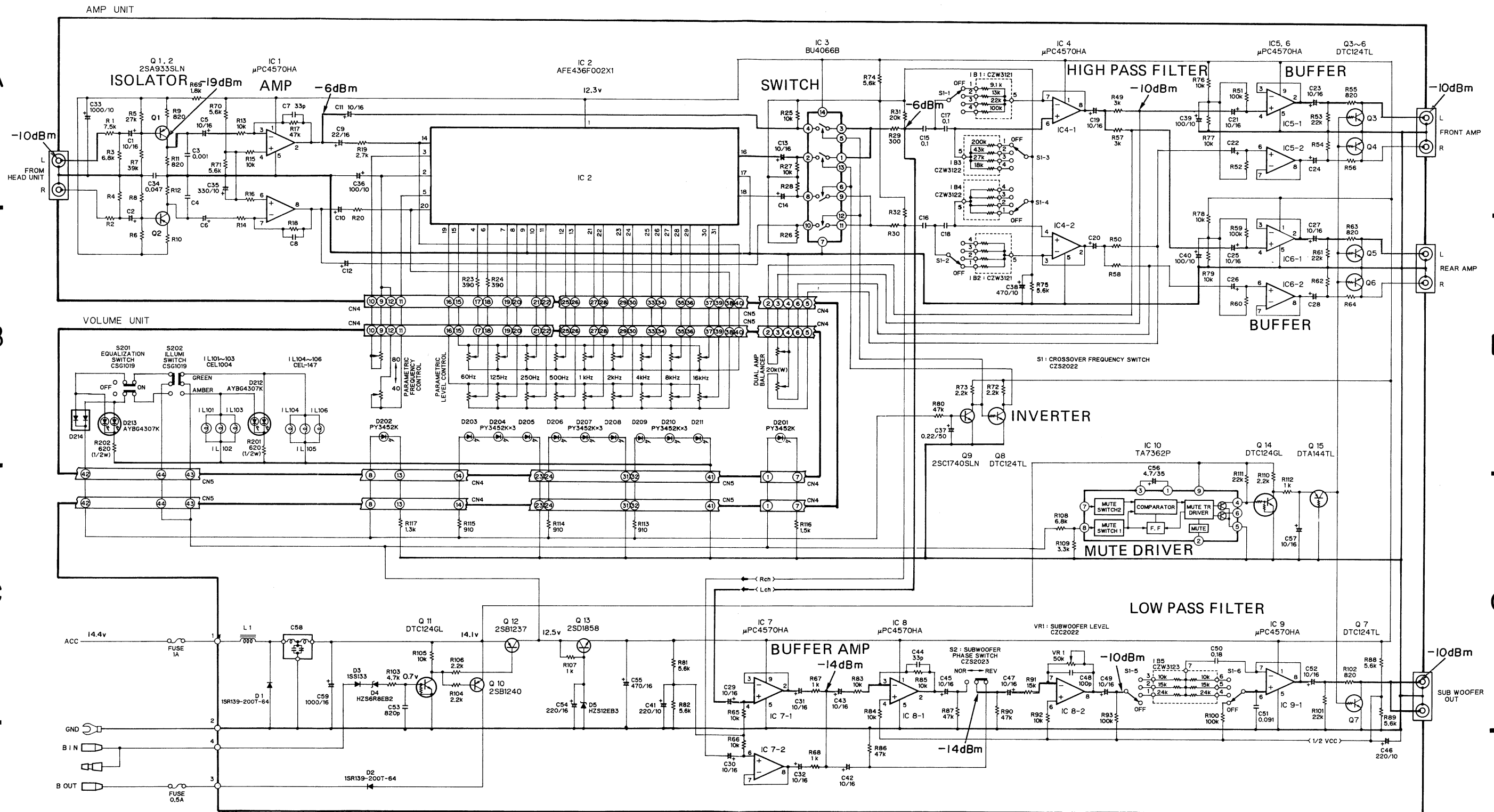


Fig. 5

## 4. SCHEMATIC CIRCUIT DIAGRAM (EQ-6000)



## SWITCHES

## ● VOLUME UNIT

S201 : EQUALIZATION SWITCH ----- ON - OFFS202 : ILLUM SWITCH ----- AMBER - GREEN

## ● AMP UNIT

S1 : CROSSOVER FREQUENCY SWITCH ----- OFF - 50Hz - 80Hz - 120Hz

S2 : SUBWOOFER PHASE SWITCH ----- NOR - REV

The underlined indicates the switch position.

Fig. 6

## 5. CONNECTION DIAGRAM (EQ-6000)

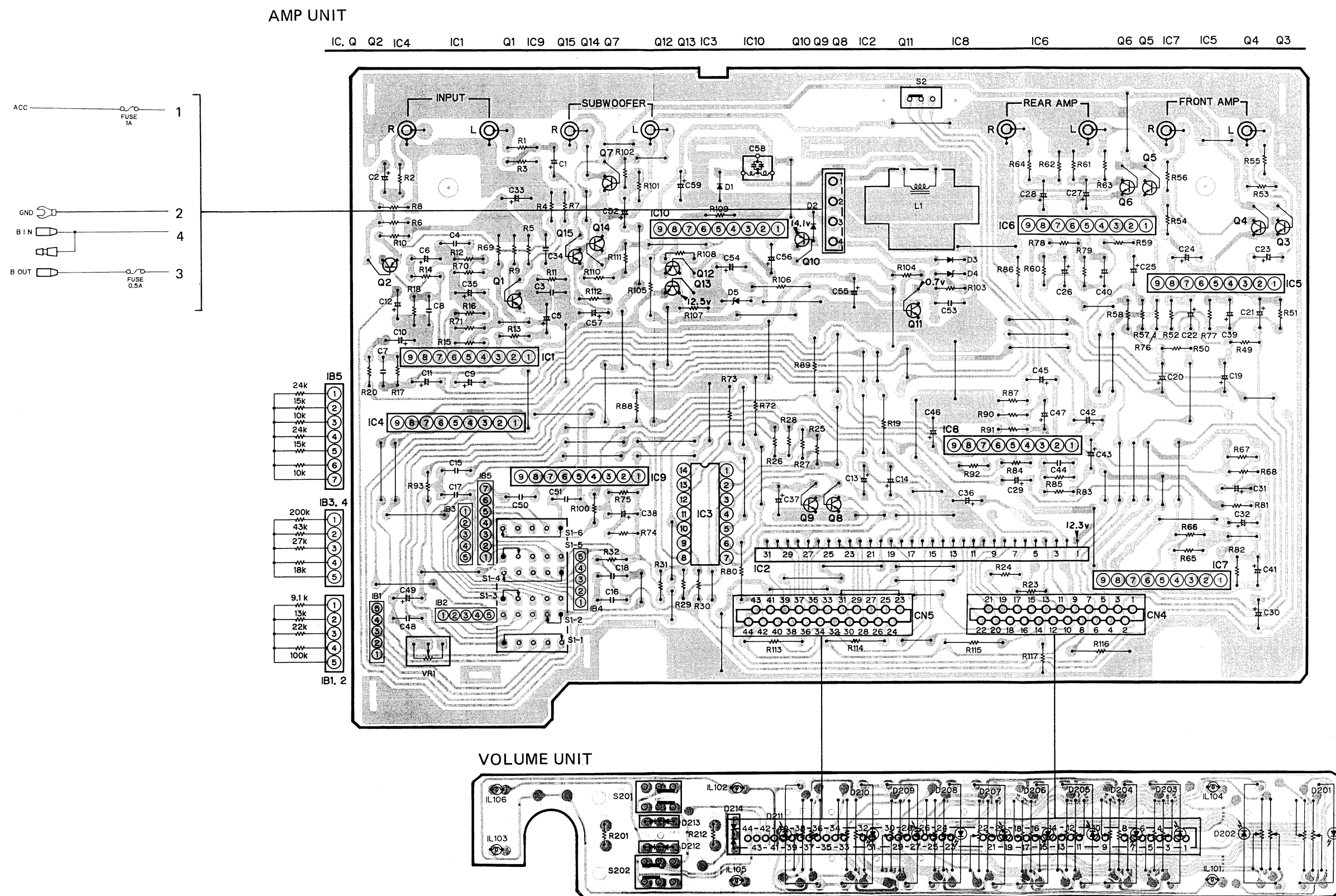
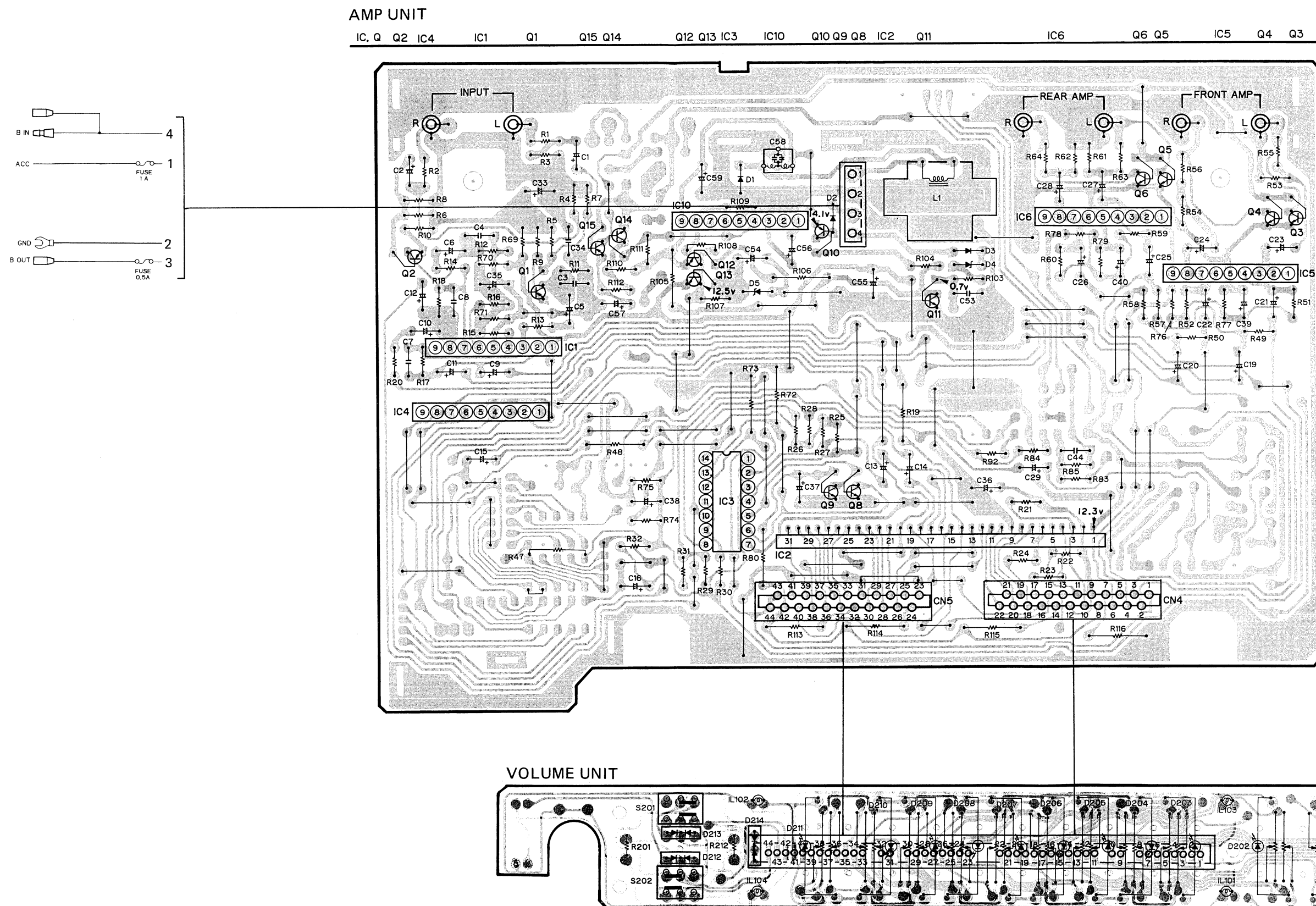


Fig. 7





## 7. CONNECTION DIAGRAM (EQ-4000)



## 8. EXPLODED VIEW

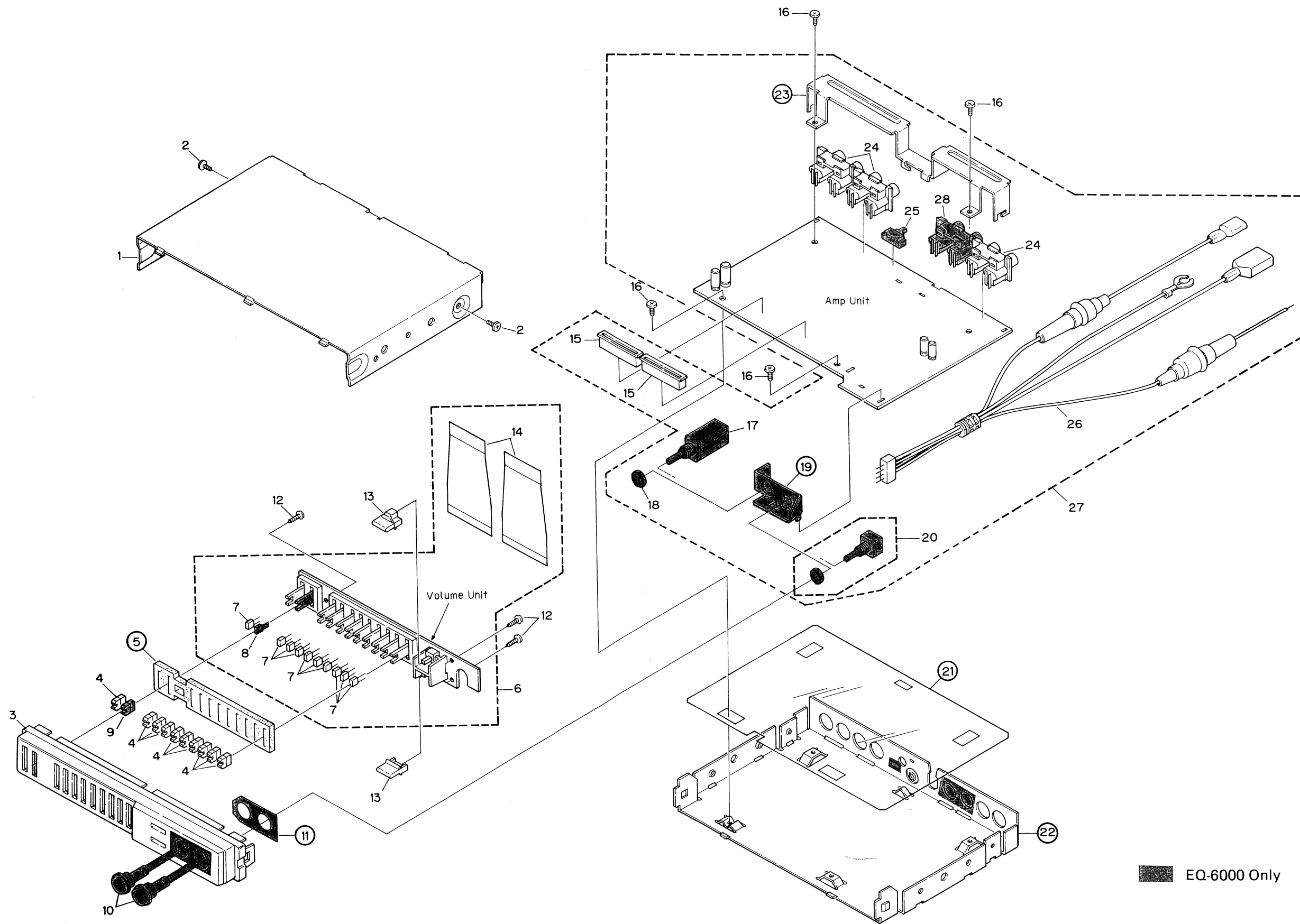


Fig. 10

## NOTE:

- For your Parts Stock Control, the fast moving items are indicated with the marks ★ ★ and ★.
- ★ ★: GENERALLY MOVES FASTER THAN ★.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- Parts marked by "●" are not always kept in stock. Their delivery time may be longer than usual or they may be unavailable.

## • Parts List

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Case	CZN2088		18	Nut (EQ-6000)	CZB2007
	2	Screw	BMZ30P040FZK		19	Bracket (EQ-6000)	
	3	Grille Sub Assy (EQ-6000)	CZX2047	★ ★	20	Volume (EQ-6000)	CZC2022
		Grille Sub Assy (EQ-4000)	CZX2049		21	Insulator	
					22	Chassis	
★	4	Knob	CZA3103		23	Bracket	
	5	Cover			24	Pin Jack	CKS1602
●	6	Volume Assy (EQ-6000)	CZW3110	★ ★	25	Switch	CZS2023
		Volume Assy (EQ-4000)	CZW3111		26	Connector Assy	CZD3128
★	7	LED	PY3452K	●	27	P. C. Board Unit (EQ-6000)	CZW3125
						P. C. Board Unit (EQ-4000)	CZW3126
★	8	LED (EQ-6000)	PY3452K				
★	9	Knob (EQ-6000)	CZA3103		28	Pin Jack (EQ-6000)	CKS1602
★	10	Knob (EQ-6000)	CZA2084				
	11	Spacer (EQ-6000)					
	12	Screw	PVZ17P070FMC				
★	13	Button	CZA2085				
	14	P. C. Board	CZN3234				
	15	Plug	CKS1445				
	16	Screw	BMZ26P050FMC				
★ ★	17	Switch (EQ-6000)	CZS2022				

## 9. ELECTRICAL PARTS LIST

### NOTE:

- For your parts Stock Control, the fast moving items are indicated with the marks \*\* and \*.
- \*\* : GENERALLY MOVES FASTER THAN \*.
- This classification shall be adjusted by each distributor because it depends on model number, temperature, humidity, etc.
- Parts whose parts numbers are omitted are subject to being not supplied.
- The part numbers shown below indicate chip components.

#### Chip Resistor

RS1/8S□□□J, RS1/10S□□□J

#### Chip Capacitor (except for CQS.....)

CKS....., CCS....., CSZS.....

Unit Number :  
Unit Name : Volume Unit(EQ-6000)

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
** IL	101	102 103		Lamp 14V 40mA (Amber)	CEL1004	*	D	5			HZS12EB3
** IL	104	105 106		Lamp 14V 40mA (Green)	CEL-147		IB	1 2			CZW3121
** S	201	202		Switch	CSG1019		IB	3 4			CZW3122
** D	201	202 203 204 205 206 207 208 209 210 211		LED	PY3452K		IB	5			CZW3123
				LED			L	1		Choke Coil	CTH1016
*	D	212 213		LED	AYBG4307K						
Unit Number :						** S	1			Switch (Crossover Frequency)	CZS2022
Unit Name : Volume Unit(EQ-4000)						** S	2			Switch (Subwoofer Phase)	CZS2023
						** VR	1			Volume (Subwoofer Level)	CZC2022

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.	RESISTORS	Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
** IL	101	102		Lamp 14V 40mA (Amber)	CEL1004		R	1 2				RD1/4PS752JL
** IL	103	104		Lamp 14V 40mA (Green)	CEL-147		R	3 4 108				RD1/4PS682JL
** S	201	202		Switch	CSG1019		R	5 6				RD1/4PS273JL
** D	201	203 204 205 206 207 208 209 210 211		LED	PY3452K		R	7 8				RD1/4PS393JL
				LED			R	9 10 11 12 55 56 63 64 102				RD1/4PS821JL
*	D	212 213		LED	AYBG4307K							
Unit Number :							R	13 14 15 16 25 26 27 28 65 66				RD1/4PS103JL
Unit Name : Amp Unit(EQ-6000)							R	17 18 80 86 87 90				RD1/4PS473JL
							R	19 20				RD1/4PS272JL
							R	23 24				RD1/4PS391JL
							R	29 30				RD1/4PS301JL

#### MISCELLANEOUS

Mark	====	Circuit Symbol & No.	====	Part Name	Part No.		Mark	====	Circuit Symbol & No.	====	Part Name	Part No.
** IC	1	4 5 6 7 8 9		μ PC4570HA			R	31 32				RD1/4PS203JL
** IC	2			AFE436F002X1			R	49 50 57 58				RD1/4PS302JL
** IC	3			BU4066B			R	51 52 59 60 93 100				RD1/4PS104JL
** IC	10			TA7362P			R	53 54 61 62 101 111				RD1/4PS223JL
** Q	1	2		2SA933SLN			R	67 68 107 112				RD1/4PS102JL
** Q	3	4 5 6 7 8		DTC124TL			R	69				RD1/4PS182JL
** Q	9			2SC1740SLN			R	70 71 74 75 81 82 88 89				RD1/4PS562JL
** Q	10			2SB1240			R	72 73 104 106 110				RD1/4PS222JL
** Q	11	14		DTC124GL			R	76 77 78 79 83 84 85 92 105				RD1/4PS103JL
** Q	12			2SB1237			R	91				RD1/4PS153JL
** Q	13			2SD1858			R	103				RD1/4PS472JL
** Q	15			DTA144TL			R	109				RD1/4PS332JL
*	D	1 2		1SR139-200T			R	113 114 115				RD1/4PS911JL
*	D	3		1SS133			R	116				RD1/4PS152JL
*	D	4		HZS6R8EB2			R	117				RD1/4PS132JL

CAPACITORS														
Mark	=====	Circuit Symbol & No.										====	Part Name	Part No.
C	1	2	5	6	11	12	13	14	19	20			CEA100M16L2	
C	3	4											CKPYB102K50L	
C	7	8	44										CCPSL330J50L	
C	9	10											CEA220M16L2	
C	15	16	17	18									CQFA104J50L	
C	21	22	23	24	25	26	27	28	29	30			CEA100M16L2	
C	31	32	42	43	45	47	49	52	57				CEA100M16L2	
C	33					1000 $\mu$ F/10V						CZC2015		
C	34												CQFA473J50L	
C	35												CEA331M10L2	
C	36	39	40										CEA101M10L2	
C	37												CEAR22M50L2	
C	38												CEA471M10L2	
C	41	46	54										CEA221M16L2	
C	48												CKPYB101K50L	
C	50												CQFA184J50L	
C	51												COMA913J50	
C	53												CKPYB821K50L	
C	55												CEA471M16L2	
C	56												CEA4R7M35L2	
C	58												CZC2005	
C	59					1000 $\mu$ F/16V						CZC2014		

MISCELLANEOUS

Mark	=====	Circuit Symbol & No.	====	Part Name	Part No.
**	IC	1      4      5      6			μ PC4570HA
**	IC	2			AFE436F002X1
**	IC	3			BU4066B
**	IC	10			TA7362P
**	Q	1      2			2SA933SLN
**	Q	3      4      5      6      8			DTC124TL
**	Q	9			2SC1740SLN
**	Q	10			2SB1240
**	Q	11    14			DTC124GL
**	Q	12			2SB1237
**	Q	13			2SD1858
**	Q	15			DTA144TL
*	D	1      2			1SR139-200T
*	D	3			1SS133
*	D	4			HZS6R8EB2
*    D	5				HZS12EB3
L	1				CTH1016
				Choke Coil	

Mark	===== -----	Circuit	Symbol & No.	==== -----	Part Name	Part No.
R	1 2					RD1/4PS752JL
R	3 4 108					RD1/4PS682JL
R	5 6					RD1/4PS273JL
R	7 8					RD1/4PS393JL
R	9 10 11 12	55	56	63 64		RD1/4PS821JL

[illegible]

## 10. PACKING METHOD

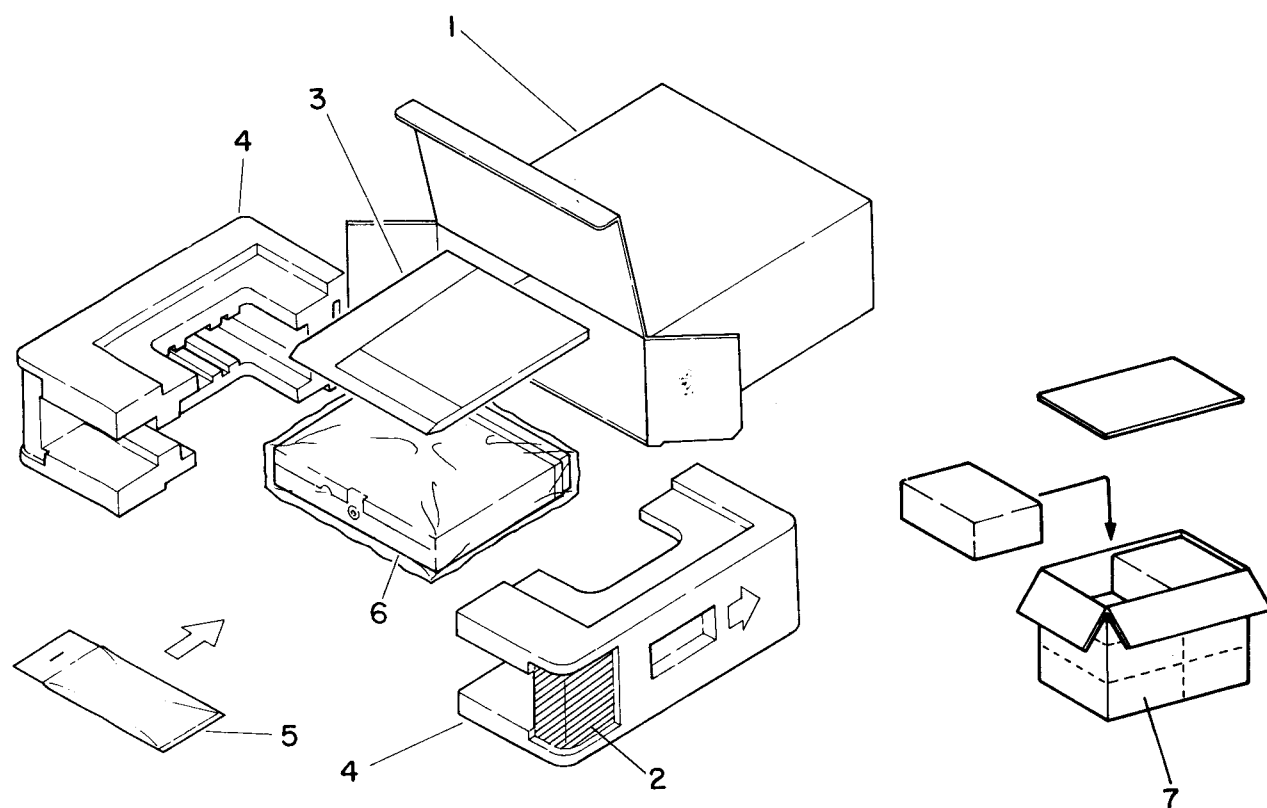


Fig. 11

### • Parts List

Mark No.	Description	Part No.
1	Carton (EQ-6000)	CZH3174
	Carton (EQ-4000)	CZH3177
2	Mounting Bracket	CZN3208
3	Card	
	Owner's Manual	CZR2070
4	Styrofoam	CZH3197
5	Screw Assy	
5-1	Screw (× 4)	HMF40P100FZK
5-2	Screw (× 4)	CBA-102
5-3	Nut (× 4)	NF50FMC
6	Cover	CEG-157
7	Contain Box (EQ-6000)	CZH3175
	Contain Box (EQ-4000)	CZH3178